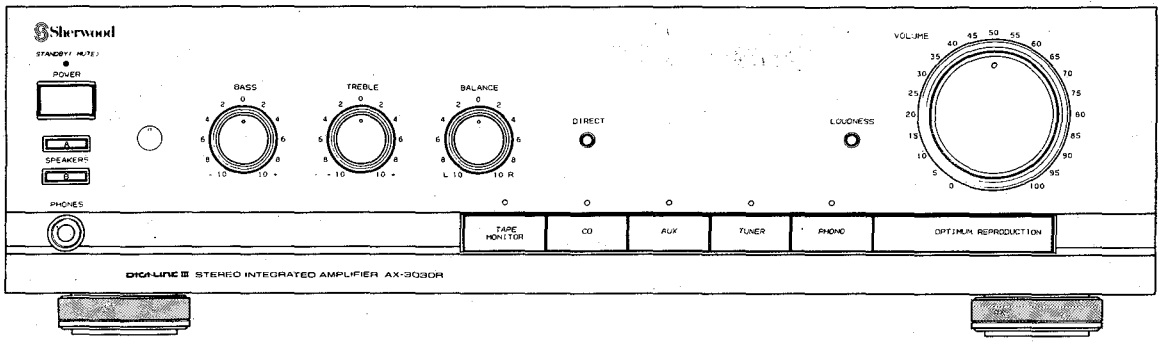
SERVICE MANUAL

AX-3030R

STEREO INTEGRATED AMPLIFIER



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Sherwood

SAFETY PRECAUTIONS

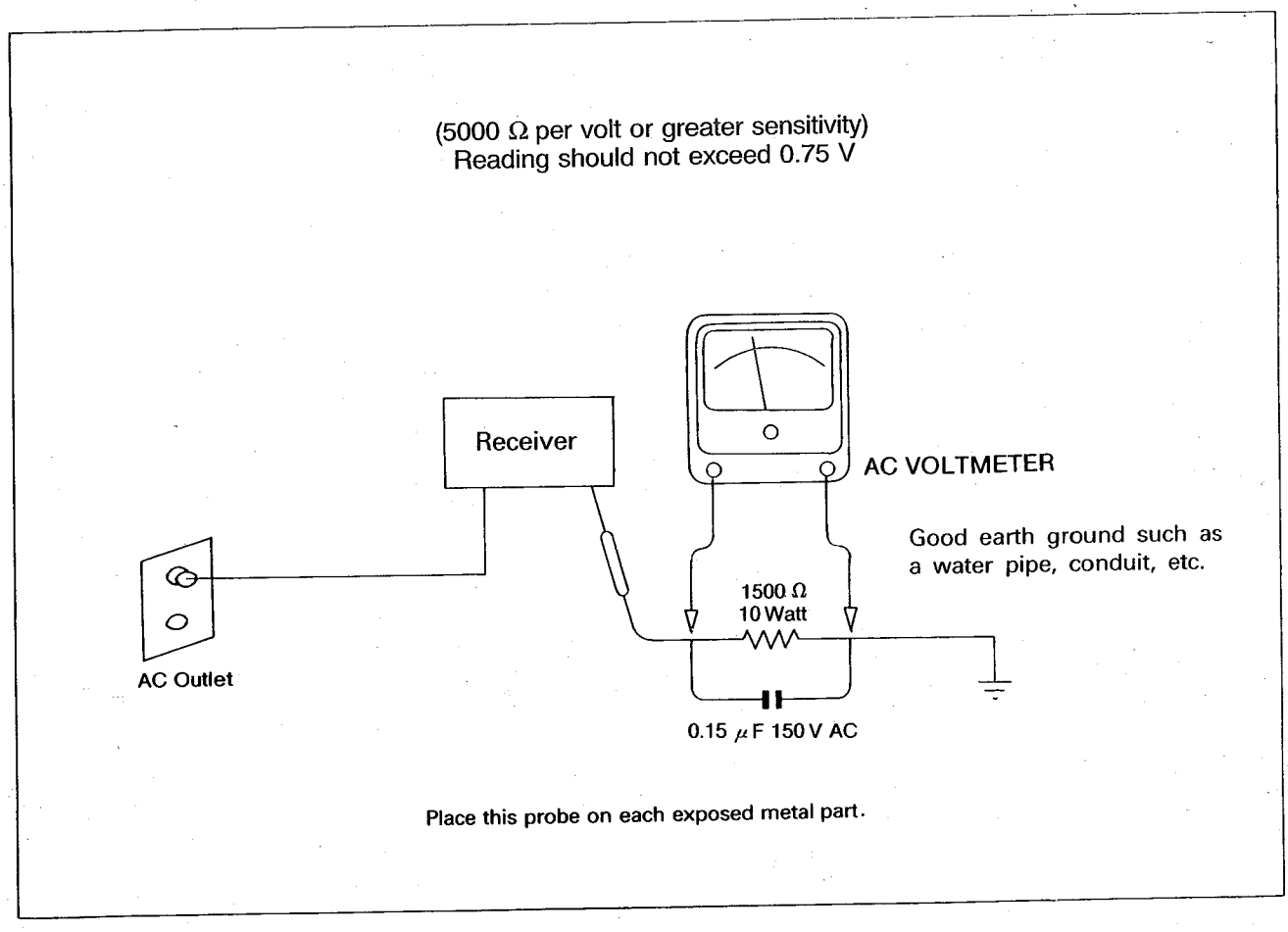
WARNING

Service Should not be attempted by anyone unfamiliar with the necessary precautions on this player. The following precautions are necessary during servicing.

1. Many electrical and mechanical parts in this player have special safety characteristics that often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements: electrical components having such features are identified by ⚠ in the schematic diagram and the parts list.

   Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characterstics as specified in the parts list may create shock, fire, or other hazards.

2. Before returning the set to the customer, always do an AC leakage current check on the exposed metal parts of the cabinet, such as terminals, screw heads, metal overlays, etc., to be sure the set is safe to operate without danger of electrical shock.
   Plug the AC line cord directly into a 120 V AC outlet**(120 V AC version only).** (Do not use a line isolation transformer during this check.)
   Use an AC voltmeter, having 5000 Ω per volt or greater sensitivity, in the following manner: Connect a 1500 Ω 10 watt resistor paralleled by a 0.15 μF 150 V AC capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metal parts, one at a time. Measure the AC voltage across the combination of a 1500 Ω resistor and a 0.15 μF capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metal part. Voltage measured must not exceed 0.75 V RMS. This corresponds to 0.2 mA AC.
   Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.


(5000 Ω per volt or greater sensitivity)
Reading should not exceed 0.75 V
Receiver
AC VOLTMETER
Good earth ground such as a water pipe, conduit, etc.
1500 Ω
10 Watt
AC Outlet
0.15 μF 150 V AC
Place this probe on each exposed metal part.

SPECIFICATIONS

Amplifier

RMS output power:
  at distortion below 0.08% 40 Hz-20 kHz
  both channels driven at 8 ohm ..... 35 W
  at distortion below 0.08% 1 kHz
  both channels driven at 8 ohm ..... 35 W
Intermodulation distortion
  at 35 W output 60 Hz : 7 kHz=4:1 SMPTE 0.08%
Harmonic distortion at 35 W output 1 kHz 0.08%
Frequency response at AUX
  8 ohm load, 1 W output –3 dB ..... 10 Hz~50 kHz
Input sensitivity for 35 W output 1 kHz:
  AUX, TUNER, CD, TAPE ..... 150 ± 20
  PHONO ..... 2.5 ± 0.5
Tone control:
  BASS, 100 Hz ..... ±10 dB
  TREBLE, 10 kHz ..... ±10 dB
Phone amp overload at 0.1% THD ..... 150 mV
Loudness compensation at Volume –30 dB:
  100 Hz ..... 6 ± 2 dB
  10 kHz ..... 3 ± 1.5 dB
Channel separation with 4.7 kohm shorted at AUX input :
  1 kHz ..... 55 dB
  10 kHz ..... 53 dB
Signal to noise ratio input 4.7 kohm shorted with IHF-A:
  PHONO at 2.5 mV ..... 70 dB
  VIDEO/AUX ..... 90 dB

General

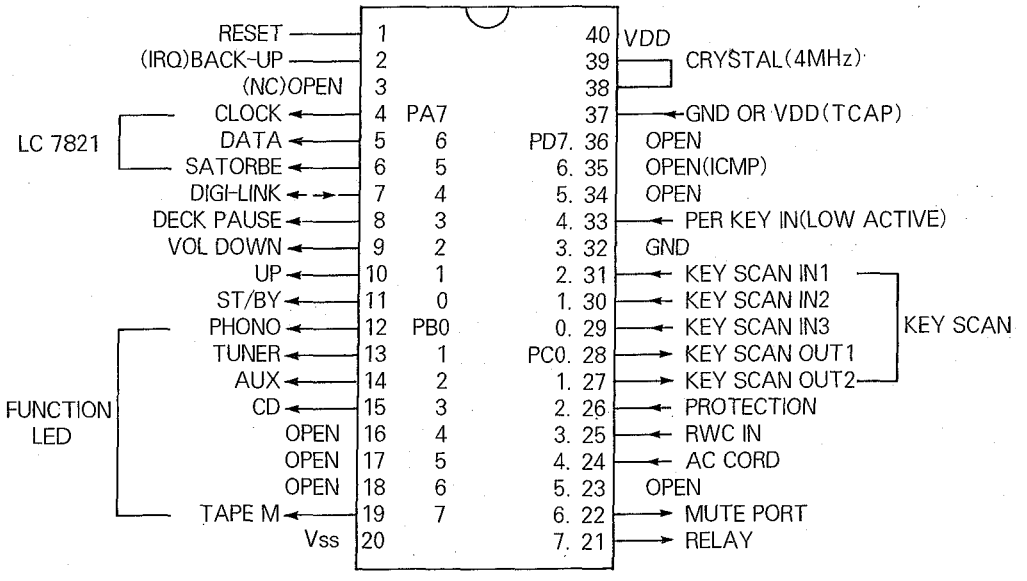
Power consumption ..... 270 W
Dimension(HWD) ..... (W)440 × (H)110 × (D)245
Weight ..... 7 kg
Power requirements:
  A:120 V 60 Hz for American/Canadian version
  B:120/220 V, 60/50 Hz for mult-voltage version(switchable)
  C:230 V 50 Hz for general European version
  D:230 V 50 Hz German/Italian version
  E:240 V 50 Hz for U.K/Austalian version
  F:230 V 50 Hz for Swiss/Scandinabian version

Note : Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on the American(A) standard, and provides information on regional circuit modification through use of alternate schematic diagrams or wiring diagram, and information on regional component variations through use of parts list. Design and specifictions subject to change without notice for improvement.

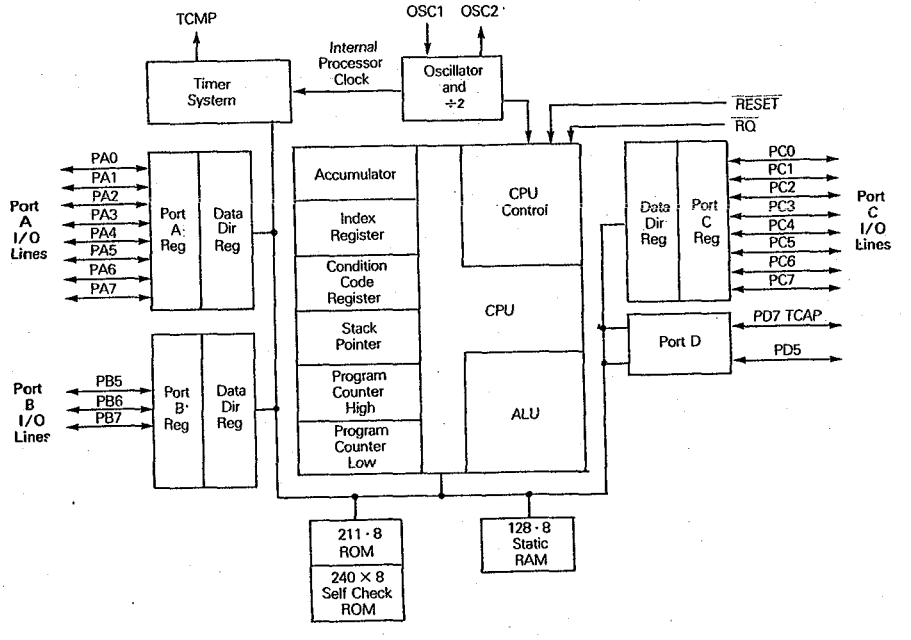
CIRCUIT DESCRIPTION

8bit CMOS Microprocessor : MC68HC705C8

Pin assignment

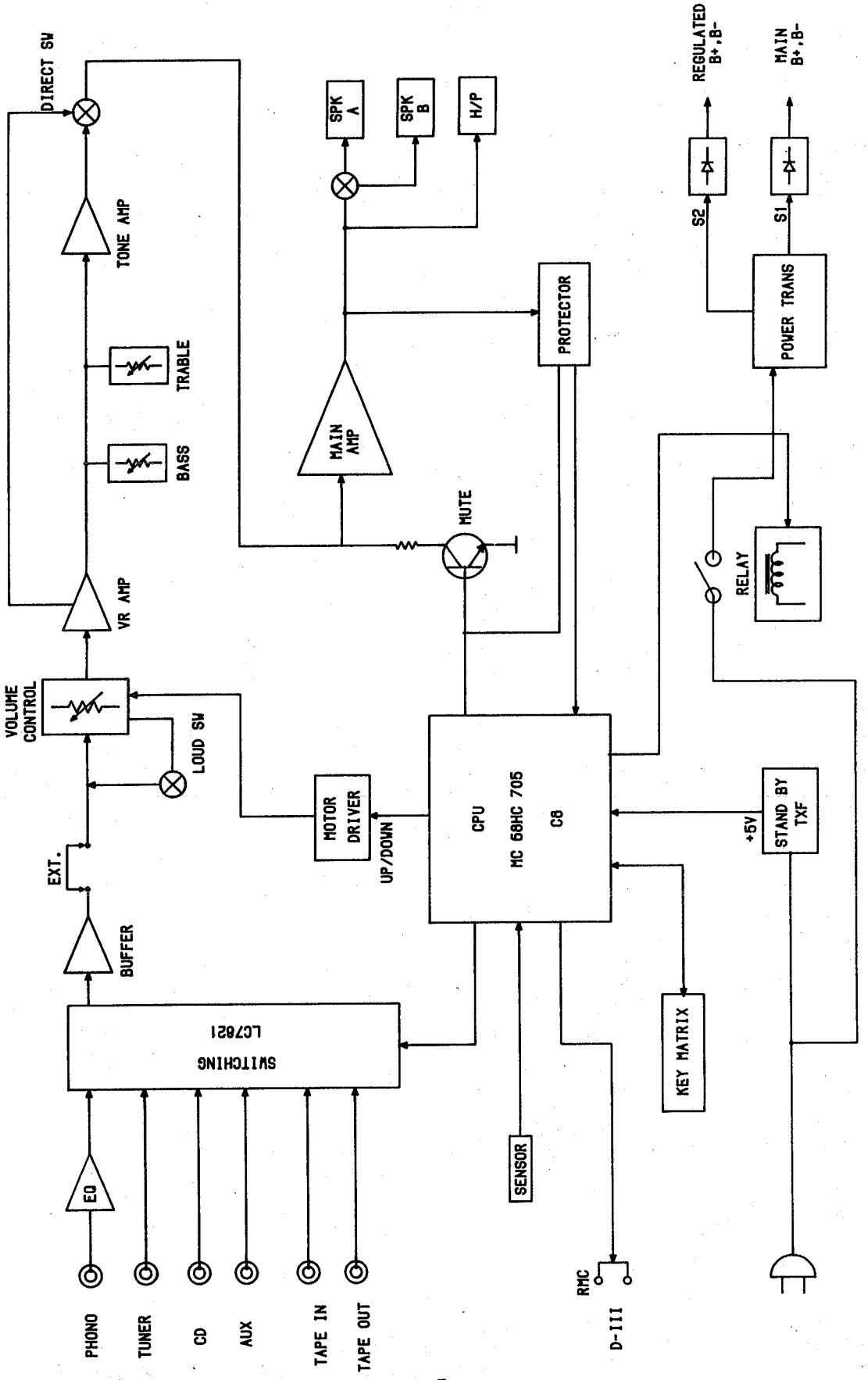


Block Diagram



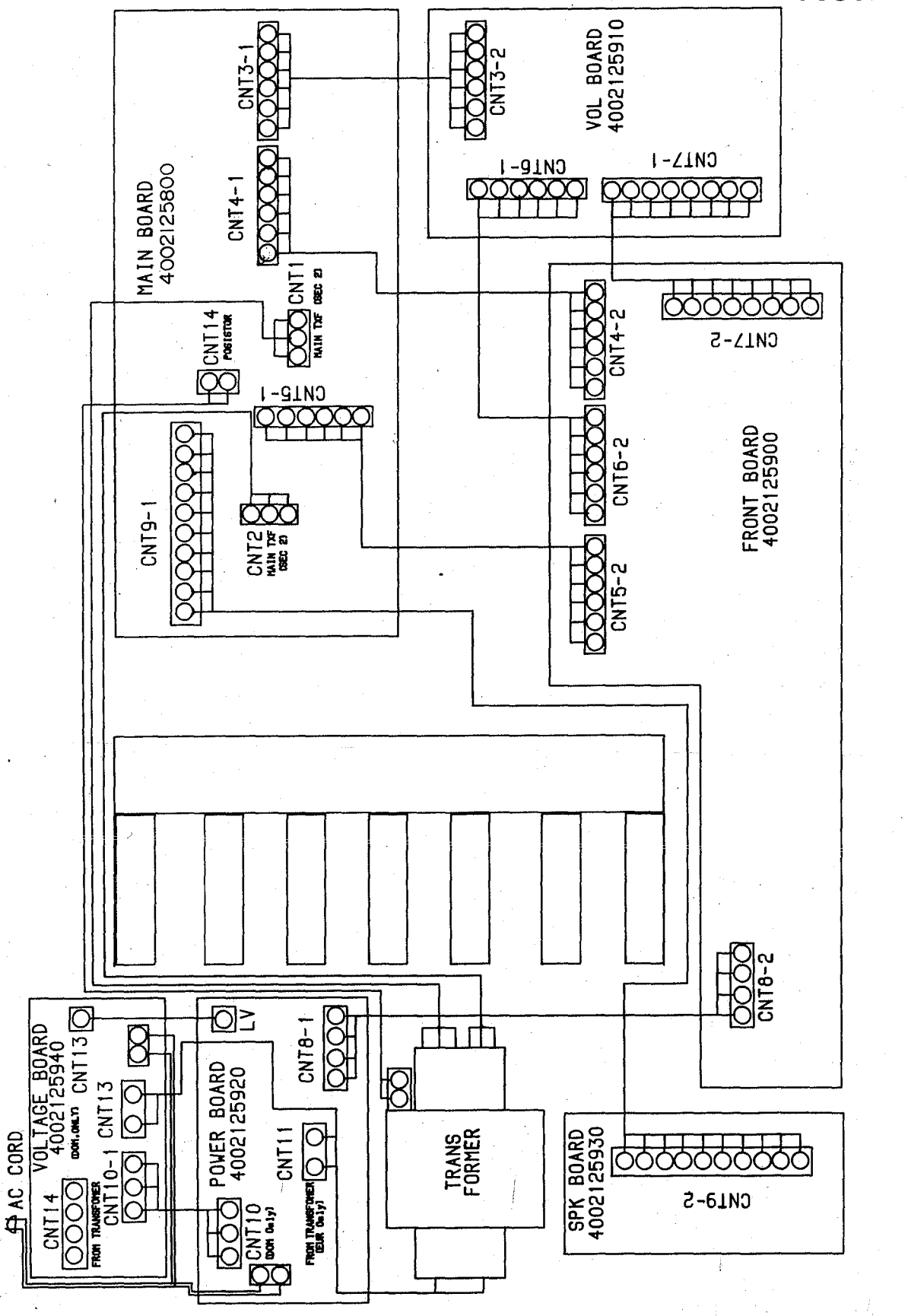
BLOCK DIAGRAM

Model No. : AX-3030R



WIRING DIAGRAM

Model No. : AX-3030R



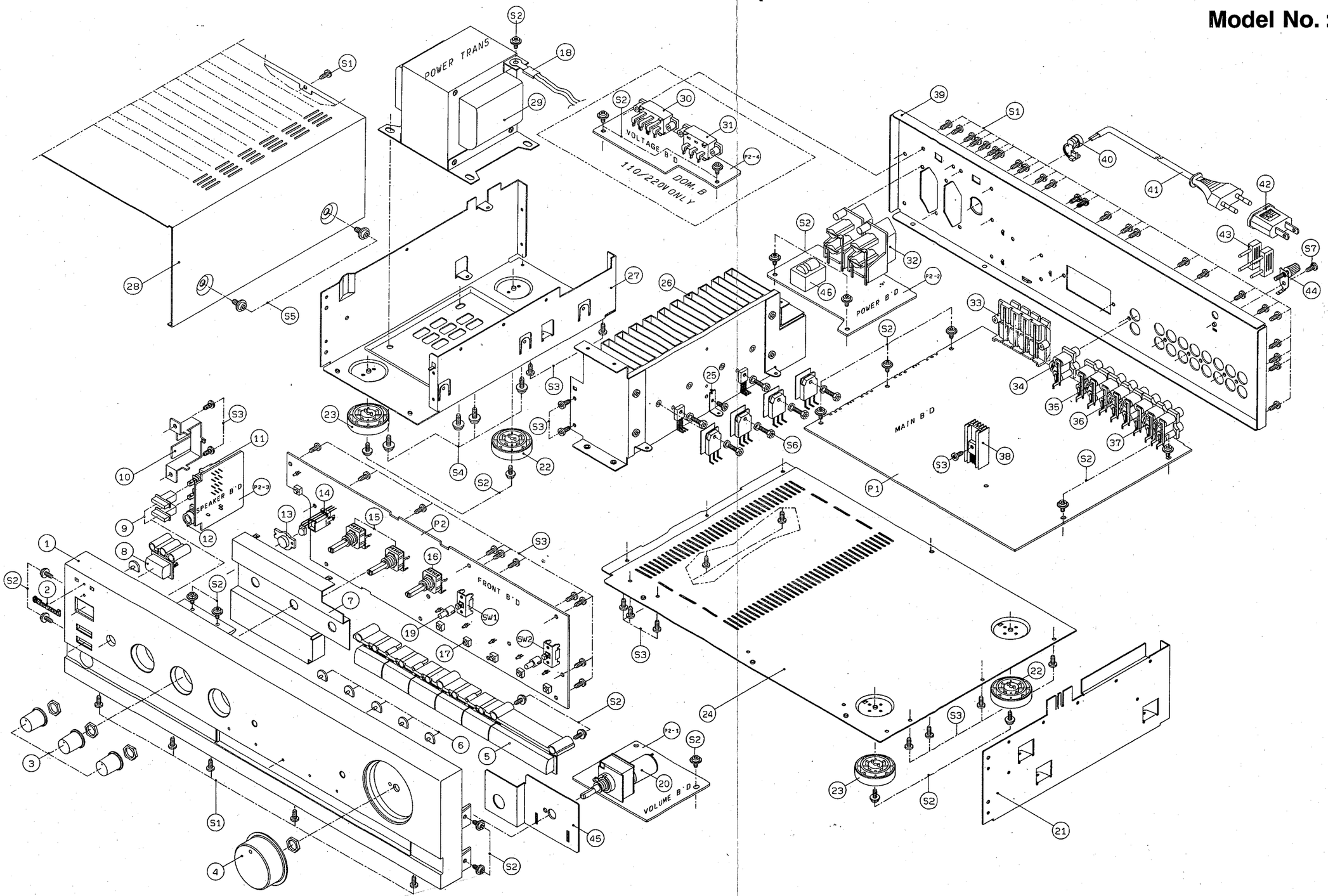
TROUBLESHOOTING

Symptom	Cause and Remedy
Amplifier inoperative (Standby indicator does not light)	• Faulty AC power cord. Replace. • Defect in the power switch. Replace. • Broken wire in the power transformer. Replace the power transformer. • Blown fuse. Replace the fuse.
Fuse blows when power is turned on.	• Defective power transformer. Replace. • Short in the primary or secondary of the transformer circuitry. Replace. • Damaged rectifier D408~D411. Replace the defective component(s). • Short circuit in the rectifier circuit. Repair the short.
Power indicator lights but no sound from both channels	• Speaker switch A or B defective. Replace the defective switch(es). • Defect in transistor Q409 L/R, Q410 L/R on the main amp board. Replace the defective component(s).
Speaker A inoperative	• Speaker switch A defective. Replace.
Speaker B inoperative	• Speaker switch B defective. Replace.
One channel does not work when Volume at maximum with a test signal	• Defect in transistor Q409 L/R, Q410 L/R of the main amp board. Replace. • Break in copper foil of printed circuit board. Repair the short. • Short in speaker output terminal. Repair or replace.
Speaker works normally but headphones Inoperative	• Headphone plug does not mate with jack. Replace the plug. • Defective resistor R429 L/R. Replace.
All the inputs work normally except VIDEO	• Poor contact in VIDEO input jack. Repair or replace the jack. • Defective IC102. Replace.

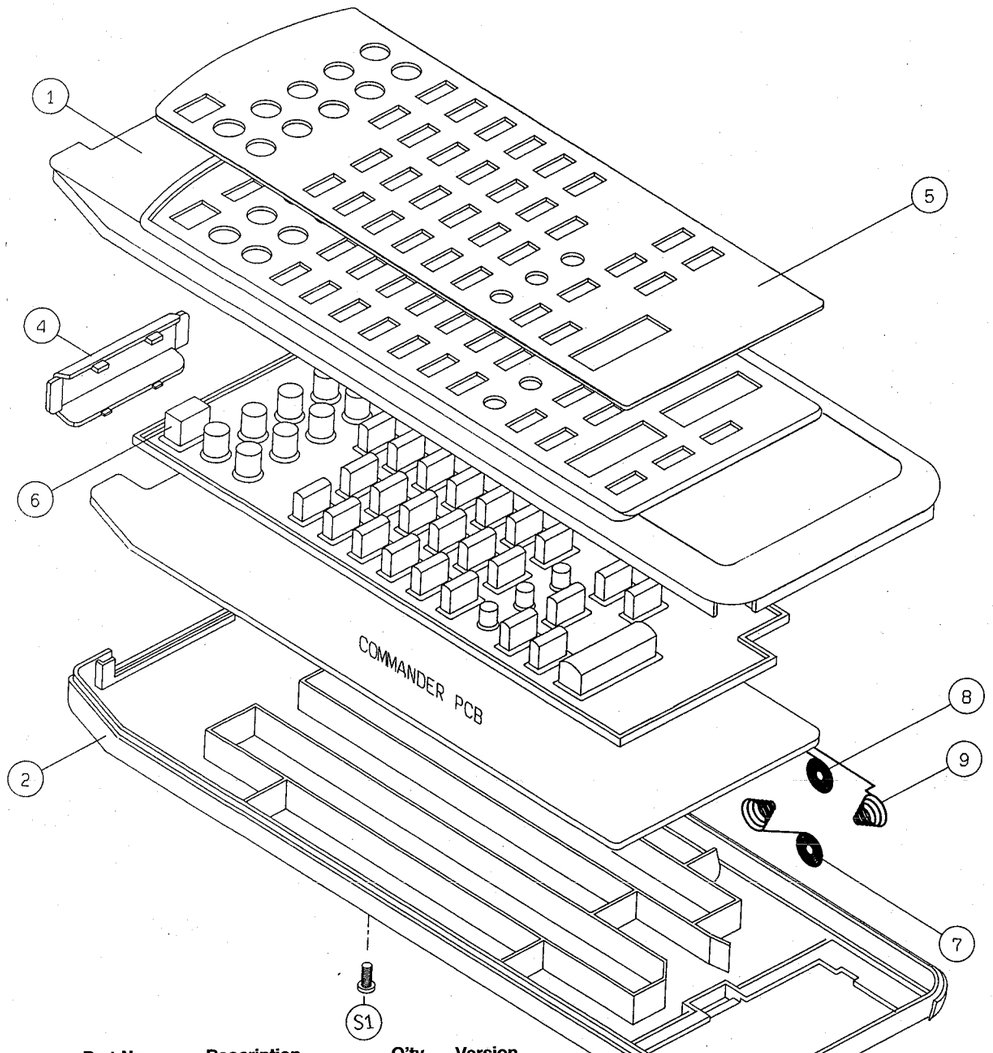
Symptom	Cause and Remedy
Phono input inoperative	• Poor contact in phono input jack. Repair or replace the jack. • Defective IC101. Replace.
Bass control has no effect	• Variable resistor bass defective. Replace. • Defective R301 L/R, R302 L/R, C301 L/R, C302 L/R, Replace the defective component(s).
Treble control has no effect	• Variable resistor treble defective. Replace. • Defective R303 L/R, R304 L/R, C303 L/R. Replace the defective component(s).
Noise volume control	• Defective IC201. Replace. • Defective capacitor C210 or C211. Replace the defective capacitor(s).
Remote control unit inoperative	Weak Battery. Replace. • Defective unit. Replace. • Defective IC301. Replace.
Loudness has no effect	• Defective loudness switch. Replace. • Defective resistor R306 L/R, C307 L/R, C308 L/R. Replace the defective component(s).

EXPLODED VIEW I (CABINET & CHASSIS)

Model No. : AX-3030R



EXPLODED VIEW Ⅱ (COMMANDER)



No.	Part No.	Description	Q'ty	Version
	054020810015	Ass'y commander		Korean
	054020910016	Ass'y commander		English
1	048582001111	Cover Top(ABS,black)	1	Korean
	048582001112	Cover Top(ABS,black)	1	English
2	8582001210	Cover Bottom(ABS,black)	1	
3	8583004410	Cover Battery(ABS,black)	1	
4	8555040210	Upper Cover(PC,purple)	1	
5	048552003652	Plate Function(PC,black)	1	Korean
	048552003651	Plate Function(PC,black)	1	English
6	048722000972	Rubber Tact	1	Korean
	048722000971	(SILICON, grey)	1	English
7	6555605310	Spring Battery(b)	1	
8	6555009810	Spring Battery(-)	1	
9	6555009710	Spring Battery(+)	1	
S1	8019120103	Screw PM 2x10B	1	

CABINET & CHASSIS PARTS LIST

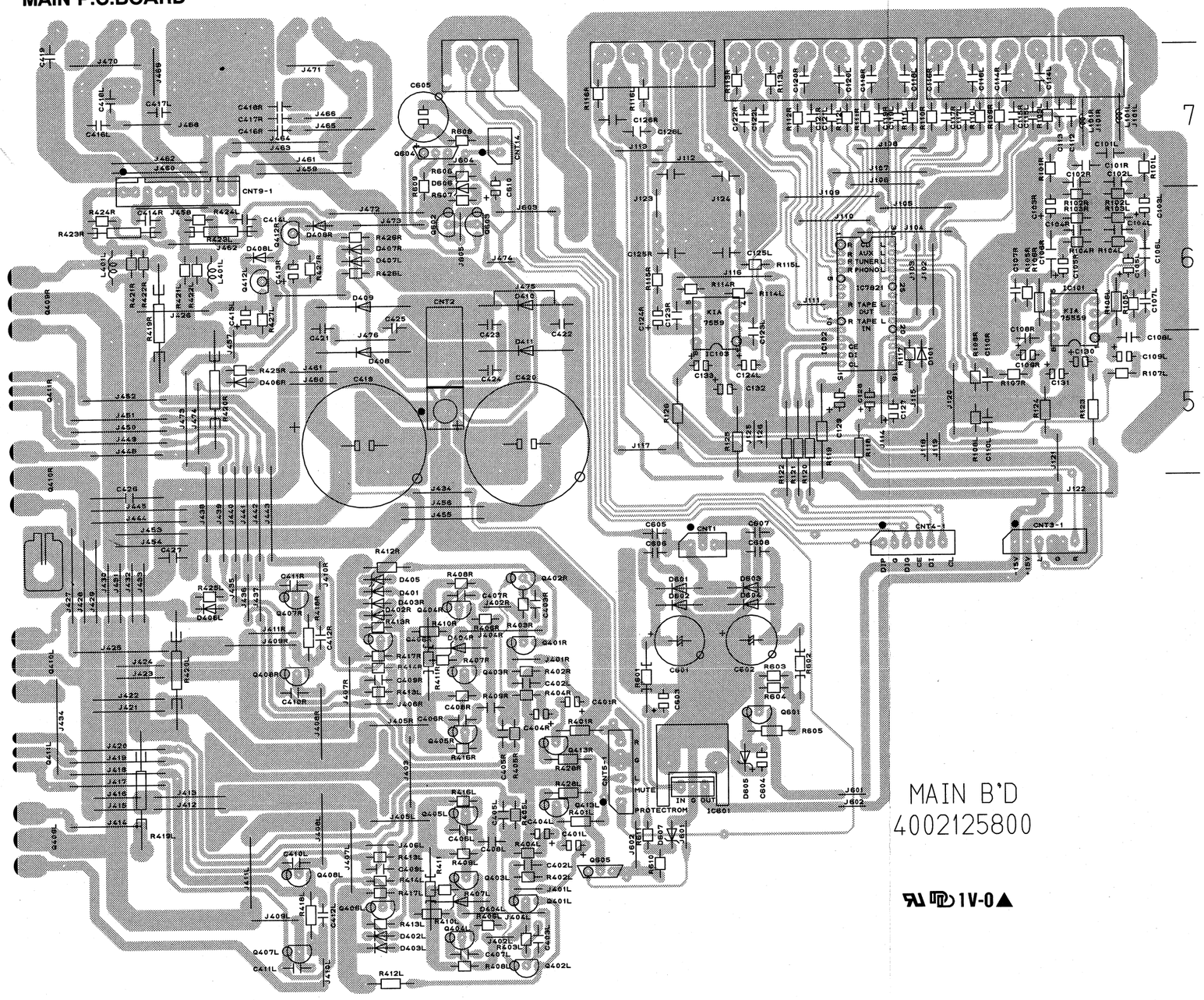
Ref. No.	Parts No.	Description	Q'ty	Version
PACKAGE				
	049605172131	Box Carton	1	A,B,C,D,E,F,G
	049605172132	Box Carton	1	Dom.
	9722036710	Cushion Poly	1	
	9735010510	Pad	1	
	9715000120	Film Soft PE	1	
	9705005310	Poly Bag, Commander	1	
CABINET				
1	048501030411	Panel Front, ABS, Black	1	Dom. Only
	048501030412	Panel Front, ABS, Black		A,B,C,D,E,F,G
2	048535039711	Badge, Gold, ABS	1	Dom. Only
	048535039811	Badge, Gold, ABS		A,B,C,D,E,F,G
3	048543043611	Knob Rotary, Bass/Treble, ABS, Black	1	
4	048543043411	Knob Rotary, Volume, ABS, Black	1	
5	048543053811	Button Function, ABS, Black	1	Dom.,C,D,E,F,G
	048543053812	Button Function, ABS, Black		A,B
6	8555043110	LED Guide, Milky, PC	1	
7	6163113210	sHIELD cOVER	1	
8	8545117910	Button Power, ABS, Black	1	
9	8545082210	Button Speaker, ABS, Black	2	
10	6165146310	Shield Fence	1	
11(SPK)	4628043810	Switch Push, SPUL19 X 1M071	2	
12(H/P)	4438005010	Jack Phone, HTJ064-11D, ABS, Godl	1	
13	8555046110	Window Sensor, Purple, PC	1	
14	6045010010	Holder Sensor, Black, HIPS	1	
15(VR301)	3208067710	VR, Rotary, 100K B x 2	1	
15(VR302)	3208067710	VR, Rotary, 100K B x 2	1	
16(VR303)	3208067810	VR, Rotary, 100K MN	1	
17	4658003710	Switch Tact	6	
18(SW1,2)	4628056410	Switch Push	2	
19	048545117811	Button Push, ABS, Gold	2	
20	3208065110	VR Motor, RK 16314MC1H253B	1	
21	6122620330	Chassis Frame Right	1	
22	6033102510	Foot, ABS, Black	2	A,B,C,D,E,F,G
	046033102511	Foot, ABS, Gold, H/S		Dom.
23	046033102511	Foot, Hot Stamping, Gold	2	A,B,C,D,E,F,G
	046033102611	Foot AL		Dom.
24	6122419510	Cover Bottom	1	
25	6505130010	Bracket P.C.B	1	
26	7502007410	Heatsink Power	1	
27	6122631220	Chassis Frame Left	1	
28	046122021331	Cover Top	1	
29 ⚠	2828000321	Power Trans	1	D
⚠	2828000341	Power Trans		Dom.
30 ⚠	4618006510	Switch Voltage, Main Trans	1	B
31 ⚠	4618006610	Switch Voltage, Stand-by Trans	1	Dom., B
32 ⚠	4448102810	AC Outlet	2	A,B
⚠	4448103610	AC Outlet		C,D,F,G
⚠	4448103910	AC Outlet		Dom.
33	4408105510	Terminal Speaker	1	Dom.,A,B
	4408105810	Terminal Speaker		C,D,E,F,G
34	4438112010	RCA Jack 2P	1	
35	4438103110	RCA Jack 4P	1	Dom.Only
36	4438103210	RCA Jack 6P	1	
37	4438108010	RCA Jack 6P	1	
38	7505206210	Heatsink, Regulator	1	
39	046102037111	Chassis Back	1	Dom.
	046102037121	Chassis Back		A
	046102037131	Chassis Back		B
	046102037141	Chassis Back		C
	046102037142	Chassis Back		G
	046102037151	Chassis Back		D
	046102037161	Chassis Back		E
	046102037171	Chassis Back		F
40	6518000111	Cord, Stopper	1	C,D,E,F,G
	6518000310	Cord, Stopper		Dom.
	6518000710	Cord, Stopper		A,B
41 ⚠	4308000430	Cord, AC Power	1	C,D,F,G
⚠	4308001410	Cord, AC Power		A,B
⚠	4308003610	Cord, AC Power		E
⚠	4308007410	Cord, AC Power		Dom.
42 ⚠	4428300310	Adaptor	1	Dom.
⚠	4428300410	Adaptor		B
43	4328204210	Plug Jumper	2	Dom. Only
44	4408103720	Terminal Ground	1	A,B,C,D,E,F,G
	4408104910	Terminal Ground	1	Dom. Only
45	6165147010	Fence Cover	1	
S1	8109230083	Screw #2 BTC 3x8 B	32	
S2	8159230081	Screw #2 WPTC 3x8 Y	22	
S3	8109230081	Screw #2 BTC 3x8 Y	25	
S4	8159440081	Screw WSAM 4x8 Y	4	
S5	8159440083	Screw WSAM 4x8 B	4	
S6	8059130121	Screw HEX MSPW 3x12Y	6	
S7	8119240061	Screw #2 PTC 4x8 Y	1	

PRODUCT SAFETY NOTICE

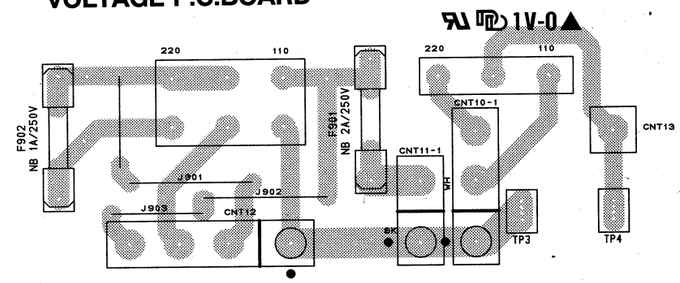
Each precaution in this manual should be follower during servicing. Components identified with the IEC symbol ⚠ in the parts list and the safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

PRINTED CIRCUIT BOARDS

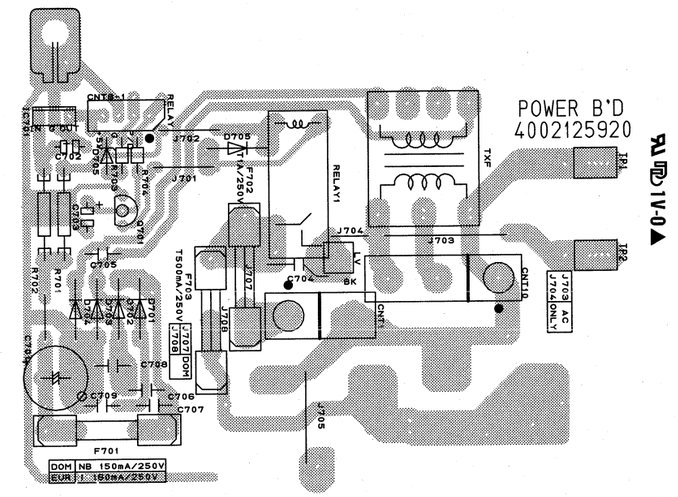
MAIN P.C.BOARD



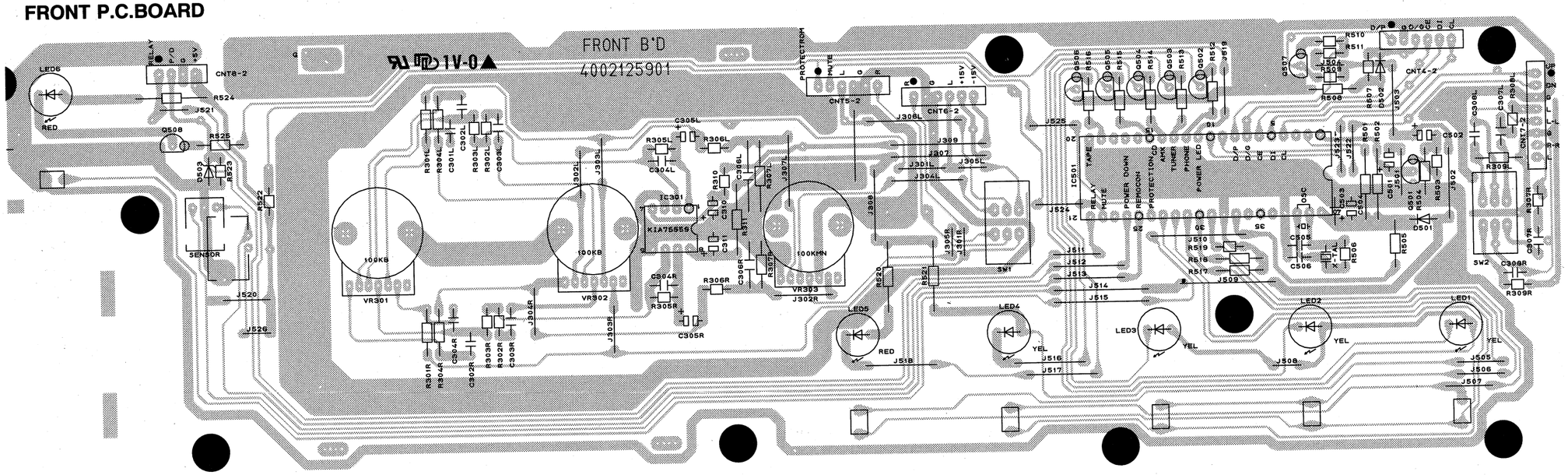
VOLTAGE P.C.BOARD



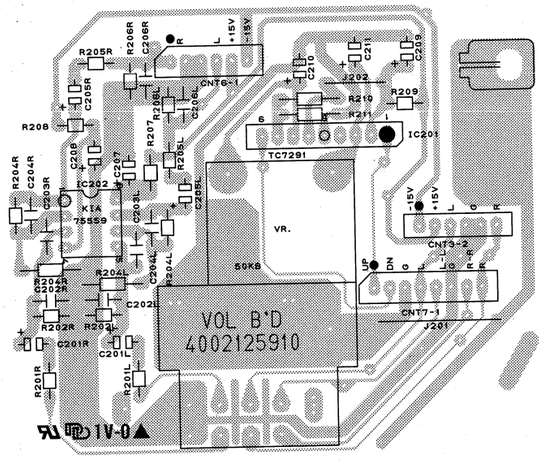
POWER P.C.BOARD



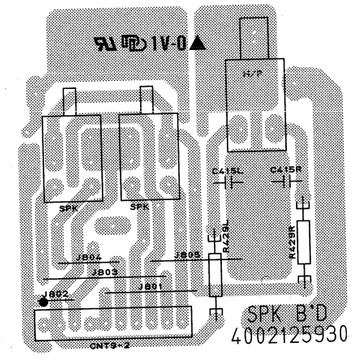
FRONT P.C.BOARD



VOL P.C.BOARD



SPK P.C.BOARD



ELECTRICAL PARTS LIST

Ref. No.	Parts No.	Description	Q'ty	Version
P1	**054020810001**	**ASS'Y P.C.B MAIN**		**Dom**
P1	**054020410002**	**ASS'Y P.C.B MAIN**		**D**
P1	**054020510003**	**ASS'Y P.C.B MAIN**		**E**
P1	**054020710004**	**ASS'Y P.C.B MAIN**		**G**
	4002125800	P.C.B-Main	1	
33	4408105510	Terminal Speaker	1	Dom.,A,B
	4408105810	Terminal Speaker		C,D,E,F,G
34	4438112010	RCA Jack 2P	1	
35	4438103110	RCA Jack 4P	1	Dom. Only
36	4438103210	RCA Jack 6P	1	
37	4438108010	RCA Jack 6P	1	
38	7505206210	Heatsink, Regulator	1	
C401L/R	3479210971	Electric SA 1 uF 50V M	2	
C402L/R	3519331935	Ceramic Tubular 330 pF 50V K	2	
C403L/R	3519471935	Ceramic Tubular 470 pF 50V K	2	
C404L/R	3479332041	Electric SG 33 uF 16V M	2	
C405L/R	3519033935	Ceramic Tubular 3.3 pF 50V K	2	
C406L/R	3519270935	Ceramic Tubular 27 pF 50V J	2	
C407L/R	3519200935	Ceramic Tubular 20 pF 50V J	2	
C408L/R	3519100935	Ceramic Tubular 10 pF 50V J	2	
C409L/R	3519102935	Ceramic Tubular 1000 pF 50V K	2	
C410L/R	3519221935	Ceramic Tubular 220 pF 50V K	2	
C411L/R	3519221935	Ceramic Tubular 220 pF 50V K	2	
C412L/R	3679473120	Mylar 0.047 uF 100V J	2	
C413L/R	3479247971	Electric SA 4.7 uF 50V M	2	
C414L/R	3679473120	Mylar 0.047 uF 100V J	2	
C416L/	3519103935	Ceramic Tubular 0.01 uF 50V J	2	A,B,C,D,E,F,G
C417L/R	3519103935	Ceramic Tubular 0.01 uF 50V J	2	D
C418L/R	3519103935	Ceramic Tubular 0.01 uF 50V J	2	D
C419/420	3419547225	Electric HS 4700 uF 50V M	2	
C421/422	3679473120	Mylar 0.047 uF 100V J	4	
C423-425	3619561110	Mylar 0.1 uF 63V K	3	D
C426/427	3519104935	Ceramic Tubular 0.1 uF 50V J	2	
C601/602	3409471149	Electric SG 470 uF 25V M	2	
C603	3479210991	Electric SA 1 uF 100V M	1	
C604	3479310071	Electric SA 10 uF 25V M	1	
C605	3409247119	Electric SG 470 uF 6.3V M	1	
C606-609	3679473120	Mylar 0.047 uF 100V J	4	A,B,C,D,E,F,G
CNT5-1	4428505810	Wafer 6P	1	
CNT9-1	4428518310	Wafer 10P	1	
D401	2258599127	Zener, UZ 18.0BSC	1	
D402L/R	2058322101	1N4148, Switching	2	
D403L/R	2058322101	1N4148, Switching	2	
D404L/R	2258599127	Zener, UZ 18.0BSC	2	
D405	2258599127	Zener, UZ 18.0BSC	1	
D406L/R	2058322101	1N4148, Switching	2	
D407 ⚠	2258100135	1N4002, Rectifier	1	
D407L/R	2058322101	1N4148, Switching	2	
D408 ⚠	2258100135	1N4002, Rectifier	1	
D408L/R	2058322101	1N4148, Switching	2	
D409/410⚠	2258100135	1N4002, Rectifier	2	
D601-604⚠	2258100135	1N4002, Rectifier	4	
D605	2258599109	Zener, UZ 15.0BSC	1	
D606	2258599130	Zener, UZ 7.5BSC	1	
D607	2258599102	Zener, UZ 4.3BSB	1	
IC601	2168601105	GD7815, Regulator	1	
L401L/R	2648001010	Inductor, 0.5uH	2	
18(POS)	052438012201	Ass'y Posistor	1	
Q401L/R	2208606108	KTC2240BL/BKTC3200BL	2	
Q402L/R	2208606108	KTC2240BL/BKTC3200BL	2	
Q403L/R	2208606108	KTC2240BL/BKTC3200BL	2	
Q404L/R	2208606108	KTC2240BL/BKTC3200BL	2	
Q405L/R	2208206102	2SA949, Current Source, PNP	2	

Ref. No.	Parts No.	Description	Q'ty	Version
Q406L/R	2208606107	KTC2229, Current Source, NPN	2	
Q407L/R	2228106107	BKTA965Y, Voltage Driver, NPN	2	
Q408L/R	2228406120	BKTC2235Y, Voltage Driver, NPN	2	
Q409L/R	2028116105	2SA1489	2	
Q410L/R	2028416108	2SC3853	2	
Q411L/R	2008622110	2SC4137	2	
Q412L/R	2208606114	MPSA06	2	
Q413L/R	2208606112	KTD1302, Mute	2	
Q601	2208206105	KTA1015Y/BKTA1266Y, Voltage Driver, PNP	1	
Q602/603	2208606104	KTC1815Y/BKTC3198Y, Switching, NPN	2	
Q604/605	2208222105	DTA114YS, Switching, NPN	2	
R401L/R	3069332970	Carbon Film 3.3k ohm 1/5W J	2	
R402L/R	3069393970	Carbon Film 39k ohm 1/5W J	2	
R403L/R	3069681970	Carbon Film 680 ohm 1/5W J	2	
R404L/R	3069182970	Carbon Film 1.8k ohm 1/5W J	2	
R405L/R	3069333970	Carbon Film 33k ohm 1/5W J	2	
R406L/R	3069123970	Carbon Film 12k ohm 1/5W J	2	
R407L/R	3069103970	Carbon Film 10k ohm 1/5W J	2	
R408L/R	3069103970	Carbon Film 10k ohm 1/5W J	2	
R409L/R	3069122970	Carbon Film 1.2k ohm 1/5W J	2	
R410L/R	3069122970	Carbon Film 1.2k ohm 1/5W J	2	
R411L/R	3029122470	Metal Film 1.2k ohm 1W K	2	
R412L/R	3069124970	Carbon Film 120k ohm 1/5W J	2	
R413L/R	3069272970	Carbon Film 2.7k ohm 1/5W J	2	
R414L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R415L/R	3069153970	Carbon Film 15k ohm 1/5W J	2	
R416L/R	3069121970	Carbon Film 120 ohm 1/5W J	2	
R417L/R	3069121970	Carbon Film 120 ohm 1/5W J	2	
R418L/R	3069221970	Carbon Film 220 ohm 1/5W J	2	
R419L/R	3059278682	Cement 0.27 ohm 3W J	2	
R420L/R	3059278682	Cement 0.27 ohm 3W J	2	
R421L/R	3069220970	Carbon Film 22 ohm 1/5W J	2	
R422L/R	3069220970	Carbon Film 22 ohm 1/5W J	2	
R423L/R	3029100470	Metal Film 10 ohm 1W J	2	
R424L/R	3069123970	Carbon Film 12k ohm 1/5W J	2	
R425L/R	3069241970	Carbon Film 240 ohm 1/5W J	2	
R426L/R	3069153970	Carbon Film 15k ohm 1/5W J	2	
R427L/R	3069472970	Carbon Film 4.7k ohm 1/5W J	2	
R428L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R601	3029100472	Metal Film 10 ohm 1W J	1	
R602	3029271472	Metal Film 270 ohm 1W J	1	
R603/604	3029471472	Metal Film 470 ohm 1W J	2	
R605	3069102970	Carbon Film 1k ohm 1/5W J	1	
R606	3069752970	Carbon Film 7.5k ohm 1/5W J	1	
R607	3069102970	Carbon Film 1k ohm 1/5W J	1	
R608	3069152970	Carbon Film 1.5k ohm 1/5W J	1	
R609/610	3069102970	Carbon Film 1k ohm 1/5W J	2	
R611	3069103970	Carbon Film 10k ohm 1/5W J	1	
P2	**054020810005**	**ASS'Y P.C.B FRONT**		**Dom**
P2	**054020410006**	**ASS'Y P.C.B FRONT**		**D**
P2	**054020510007**	**ASS'Y P.C.B FRONT**		**E**
P2	**054020710008**	**ASS'Y P.C.B FRONT**		**G**
	4002125900	P.C.B-Front	1	
7	6163113210	Shield Cover	1	
13	8555046110	Window Sensor, Purple, PC	1	
14	6045010010	Holder Sensor, Black, HIPS	1	
15(VR301)	3208067710	VR, Rotary, 100K Bx2	1	
15(VR302)	3208067710	VR, Rotary, 100K Bx2	1	
16(VR303)	3208067810	VR, Rotary, 100K MN	1	
17	4658003710	Switch Tact	6	
18,(SW1,2)	4628056410	Switch Push	2	
C101L/R	3519220935	Ceramic Tubular 22 pF 50V J	2	

Ref. No.	Parts No.	Description				Q'ty	Version
C102L/R	3519680935	Ceramic Tubular	68 pF	50V	J	2	
C103L/R	3479210071	Electric SA	10 uF	50V	M	2	
C104L/R	3519102935	Ceramic Tubular	1000 PF	50V	K	2	
C105L/R	3479310121	Electric SG	100 uF	10V	M	2	
C106L/R	3519222915	Ceramic Tubular	2200 pF	16V	K	2	
C107L/R	3679182120	Mylar	0.0018 uF	100V	J	2	
C108L/R	3679562120	Mylar	0.0056 uF	100V	J	2	
C109L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C110L/R	3679562120	Mylar	0.0056 uF	100V	J	2	
C112/113	3519104935	Ceramic Tubular	0.1 uF	50V	K	2	
C114L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	D
C115L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	
C116L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	D
C117L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	
C118L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	D
C119L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	
C120L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	D
C121L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	
C122L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	
C123L/R	3519471935	Ceramic Tubular	470 pF	50V	K	2	
C124L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C125L/R	3519471935	Ceramic Tubular	470 pF	50V	K	2	
C126L/R	3519101935	Ceramic Tubular	100 pF	50V	K	2	Dom.
C127	3479210971	Electric SA	1 uF	50V	M	1	
C128-133	3479247031	Electric SG	47 uF	16V	M	6	
C301L/R	3679223120	Mylar	0.022 uF	100V	J	2	
C302L/R	3679223120	Mylar	0.022 uF	100V	J	2	
C303L/R	3519561935	Ceramic Tubular	560 pF	50V	K	2	
C304L/R	3519470935	Ceramic Tubular	47 pF	50V	J	2	
C305L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C306L/R	3519561935	Ceramic Tubular	560 pF	50V	K	2	
C307L/R	3519561935	Ceramic Tubular	560 pF	50V	K	2	
C308L/R	3619561110	Mylar	0.1 uF	63V	K	2	
C501	3479210971	Electric SA	1 uF	50V	M	1	
C502	3479210061	Electric SA	10 uF	35V	M	1	
C503	3519102935	Ceramic Tubular	1000 pF	50V	K	1	
C504	3439247312	Back-up, AC310G473Z5R5	0.047 F	5.5V		1	
C505/506	3519270935	Ceramic Tubular	27 pF	50V	J	2	
CNT3-1	4428505810	Wafer 6P				1	
CNT4-1	4428505810	Wafer 6P				1	
CNT4-2	4361062433	Lead Ass'y 6P				1	
CNT5-1	4428505810	Wafer 6P				1	
CNT5-2	4361062433	Lead Ass'y 6P				1	
CNT6-2	4361062433	Lead Ass'y 6P				1	
CNT7-2	4361081633	Lead Ass'y 8P				1	
CNT8-1	4428505610	Wafer 4P				1	
CNT8-2	4361042833	Lead Ass'y 4P				1	
D101	2058322101	1N4148, Switching				1	
D501/502	2058322101	1N4148, Switching				2	
D503	2258599103	Zener, UZ 5.1BSB				1	
IC101	2168017132	LC7821, Function Switching				1	
IC102	2168206103	KIA75559S/KIA4559P, OP Amp				1	
IC103	2168206103	KIA75559S/KIA4559P, OP Amp				1	
IC501	2138309171	MC68HC705C8P, CPU				1	
L101L/R	2648001010	Inductor, 50mH				2	
LED1-4	2371124501	SLR34YCD, -70F 124, Yellow				4	
LED5/6	2371124701	SLR34URC, -70F 124, Red				2	
Q501	2208606104	KTC1815Y/BKTC3198Y				1	
Q502	2208606104	KTC1815Y/BKTC3198Y				1	
Q503	2208606104	KTC1815Y/BKTC3198Y				1	
Q504	2208606104	KTC1815Y/BKTC3198Y				1	
Q505	2208606104	KTC1815Y/BKTC3198Y				1	
Q506	2208606104	KTC1815Y/BKTC3198Y				1	
Q507	2208606104	KTC1815Y/BKTC3198Y				1	

Ref. No.	Parts No.	Description				Q'ty	Version
Q508	2208606104	KTC1815Y/BKTC3198Y				1	
R101L/R	3069102970	Carbon Film	1k ohm	1/5W	J	2	
R102L/R	3069913970	Carbon Film	91K ohm	1/5W	J	2	
R103L/R	3069913970	Carbon Film	91K ohm	1/5W	J	2	
R104L/R	3069911970	Carbon Film	910 ohm	1/5W	J	2	
R105L/R	3069433970	Carbon Film	43k ohm	1/5W	J	2	
R106L/R	3069564970	Carbon Film	560k ohm	1/5W	J	2	
R107L/R	3069471970	Carbon Film	470 ohm	1/5W	J	2	
R108L/R	3069104970	Carbon Film	100k ohm	1/5W	J	2	
R109L/R	3069102970	Carbon Film	1k ohm	1/5W	J	2	
R110L/R	3069102970	Carbon Film	1k ohm	1/5W	J	2	
R111L/R	3069102970	Carbon Film	1k ohm	1/5W	J	2	
R112L/R	3069102970	Carbon Film	1k ohm	1/5W	J	2	
R113L/R	3069102970	Carbon Film	1k ohm	1/5W	J	2	
R114L/R	3069104970	Carbon Film	100k ohm	1/5W	J	2	
R115L/R	3069471970	Carbon Film	470 ohm	1/5W	J	2	
R116L/R	3069102970	Carbon Film	1k ohm	1/5W	J	2	
R117	3069104970	Carbon Film	100k ohm	1/5W	J	1	
R118/119	3069101970	Carbon Film	100 ohm	1/5W	J	2	
R120-122	3069103970	Carbon Film	10k ohm	1/5W	J	3	
R123-128	3069101970	Carbon Film	100 ohm	1/5W	J	6	
R301L/R	3069223970	Carbon Film	22k ohm	1/5W	J	2	
R302L/R	3069203970	Carbon Film	20k ohm	1/5W	J	2	
R303L/R	3009333973	Carbon Film	33k ohm	1/5W	J	2	
R304L/R	3069223970	Carbon Film	22k ohm	1/5W	J	2	
R305L/R	3069225970	Carbon Film	2.2M ohm	1/5W	J	2	
R306L/R	3069471970	Carbon Film	470 ohm	1/5W	J	2	
R307L/R	3069104970	Carbon Film	100k ohm	1/5W	J	2	
R308L/R	3069393970	Carbon Film	39k ohm	1/5W	J	2	
R309L/R	3069392970	Carbon Film	3.9k ohm	1/5W	J	2	
R310/311	3069101970	Carbon Film	100 ohm	1/5W	J	2	
R501/502	3069104970	Carbon Film	100k ohm	1/5W	J	2	
R503	3069102970	Carbon Film	1k ohm	1/5W	J	1	
R504	3069103970	Carbon Film	10k ohm	1/5W	J	1	
R505	3069104970	Carbon Film	100k ohm	1/5W	J	1	
R506	3069105970	Carbon Film	1M ohm	1/5W	J	1	
R507	3069223970	Carbon Film	22k ohm	1/5W	J	1	
R508	3069224970	Carbon Film	220k ohm	1/5W	J	1	
R509	3069102970	Carbon Film	1k ohm	1/5W	J	1	
R510	3069103970	Carbon Film	10k ohm	1/5W	J	1	
R511	3069223970	Carbon Film	22k ohm	1/5W	J	1	
R512-516	3069103970	Carbon Film	10k ohm	1/5W	J	5	
R517-519	3069334970	Carbon Film	330k ohm	1/5W	J	3	
R520/521	3069681970	Carbon Film	680 ohm	1/5W	J	2	
R522	3069104970	Carbon Film	100k ohm	1/5W	J	1	
R523	3069103970	Carbon Film	10k ohm	1/5W	J	1	
R524	3069102970	Carbon Film	1k ohm	1/5W	J	1	
R525	3069472970	Carbon Film	4.7k ohm	1/5W	J	1	
SENSOR	2408004005	RPM 600CB, Angle				1	
X-TAL	3938101830	4M, Resonator				1	
P2-1	**054021010017**	**ASS'Y P.C.B VOLUME**					
	4002125910	P.C.B Volume				1	
20	3208065110	VR Motor, RK 16314MC1H253B				1	
C201L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C202L/R	3519470935	Ceramic Tubular	47 pF	50V	J	2	
C203L/R	3519331935	Ceramic Tubular	330 pF	50V	K	2	
C204L/R	3519820935	Ceramic Tubular	82 pF	50V	K	2	
C205L/R	3479247971	Electric SA	4.7 uF	50V	M	2	
C206L/R	3519102935	Ceramic Tubular	1000 pF	50V	K	2	
C207/208	3479247031	Electric SG	47 uF	16V	M	2	
C209	3479210061	Electric SA	10 uF	35V	M	1	
C210/211	3479310131	Electric SG	100 uF	16V	M	2	
IC201	2168007204	TA7291S, Motor Control				1	

Ref. No.	Parts No.	Description	Q'ty	Remark
IC202	2168206103	KIA75559S/KIA4559P, OP Amp	1	
R201L/R	3069102970	Carbon Film 1k ohm 1/5W J	2	
R202L/R	3069473970	Carbon Film 47k ohm 1/5W J	2	
R203L/R	3069561970	Carbon Film 560 ohm 1/5W J	2	
R204L/R	3069820970	Carbon Film 82 ohm 1/5W J	2	
R205L/R	3069471970	Carbon Film 470 ohm 1/5W J	2	
R206L/R	3069104970	Carbon Film 100k ohm 1/5W J	2	
R207/208	3069101970	Carbon Film 100 ohm 1/5W J	2	
R209	3069470970	Carbon Film 47 ohm 1/5W J	1	
R210	3069822970	Carbon Film 8.2k ohm 1/5W J	1	
R211	3069272970	Carbon Film 2.7k ohm 1/5W J	1	
CNT3-2	436106123321	Lead Ass'y 6P	1	
CNT6-1	4428505810	Wafer 8P, ST 5267-06P	1	
CNT7-1	4428505510	Wafer 8P, ST 5267-08P	1	
P2-2	**054020810009**	**ASS'Y P.C.B POWER**		**Dom.**
P2-2	**054020810009**	**ASS'Y P.C.B POWER**		**D**
P2-2	**054020410010**	**ASS'Y P.C.B POWER**		**E**
P2-2	**054020710012**	**ASS'Y P.C.B POWER**		**G**
	4002125920	P.C.B Power	1	
32 ⚠	4448103910	AC Outlet	2	Dom.
⚠	4448102810	AC Outlet	2	A,B
⚠	4448103610	AC Outlet	2	C,D,F,G
C701	3409310239	Electric SG 470 uF 16V M	1	
C702	3479210971	Electric SA 1 uF 50V M	1	
C703	3479210061	Electric SA 10 uF 35V M	1	
C704	3549472407	Ceramic Disc 0.0047 uF 400V J	1	
C705-709	3679473120	Mylar 0.047 uF 100V J	5	
CNT8-1	4428505610	Wafer 4P, ST 5267-04P	1	
CNT1	4428525780	Wafer AC S-2 2P, LV Type	1	A,C,D,E,F
CNT10	4428525790	Pin Base 3P, LV Type	1	Multy Vol.
D701	2258599102	Zener, UZ 4.3BSB	1	
D706 ⚠	2258100135	1N4002, Rectifier	1	
F701 ⚠	5508301034	TL 160mA 250V, SEMKO	1	
(F701) ⚠	5508210931	NB 150mA 250V UL/C	1	DOM,B
F702 ⚠	5508302035	TL 1A 250V, SENKO	1	
F703 ⚠	5508301634	TL 500mA 250V, SEMKO	1	
IC701	2168601102	QD7806, Regulator	1	
Q701	2208606114	MPSA06, Switching, NPN	1	
R701	3039330472	Metal Oxide 33 ohm 1W K	1	
R702	3039100472	Metal Oxide 10 ohm 1 K	1	
R703	3069102970	Carbon Film 1k ohm 1/5W J	1	
R704	3069331970	Carbon Film 330 ohm 1/5W J	1	
RELAY1	5528001620	OST-S-112DM, Switching	1	
TP1/TP2	4228001410	Pin Solder	2	
TXF ⚠	2828090901	Stand-by Transformer	1	
	4235007310	Terminal Ground	1	
	4255001010	Clip Fuse, PFC5000-0202		
P2-3	**054021010013**	**ASS'Y P.C.B SPEAKER**		
	4002125930	P.C.B Speaker	1	
10	6165146310	Shield Fence	1	
11 (SPK)	4628043810	Switch Push, SPUL19X1M071	2	
12 (H/P)	4438005010	Jack Phone, HTJ064-11D, ABS, Gold	1	
C415L/R	3519561935	Ceramic Tubular 560 pF 50V K	2	
R429L/R	3029471472	Metal Film 470 ohm 1W J	2	
CNT9-2	436210453461	Lead Ass'y 10P, CTG 1045G J DL R#22	1	
P2-4	**054021010014**	**ASS'Y P.C.B VOLTAGE FOR MULTY VOLTAGE AREA ONLY**		
	4002125930	P.C.B Speaker	1	
30	4618006510	Switch Voltage, Main Trans	1	Dom., B
31 ⚠	4618006610	Switch Voltage, Stand-by Trans	1	Dom., B
F901 ⚠	5508202430	Fuse NB, 2A 250V	1	

Ref. No.	Parts No.	Description	Q'ty	Version
F902	5508202030	Fuse NB, 1A 250V	1	
CNT10-1	4428525790	Wafer AC S- 3P, LV Type	1	
CNT11-1	4428525780	Wafer AC S-2 2P, LV Type	1	
CNT12	4428525800	Wafer AC S- 4P, LV Type	1	
CNT13	4428525770	Wafer AC S- 1P, LV Type	1	
TP3/TP4	4228001410	Pin Solder	2	
	4255001010	Clip Fuse, PFC5000-0202		
	4002126000	**P.C.B Commander**	**1**	
C1	3479247021	Capacitor, Electric SA 47 µF 10V M	1	
C2	3528470210	Capacitor, Ceramic 47 pF 50V J	1	
D1	2058322101	1N4148, Switching	1	
IC	2138013122	uPD6122G-002	1	
LED	2408001139	I.R EL2-5HIR7	1	
Q1	2208610102	2SD1302S, NPN	1	
R1	3069471970	Carbon Film 470 ohm 1/5W J	1	
R2	3069229970	Carbon Film 2.2 ohm 1/5W J	1	
R3-R7	3069224970	Carbon Film 220K ohm 1/5W J	5	
X-TAL	3938101890	Resonator, Ceramic CRA 455	1	

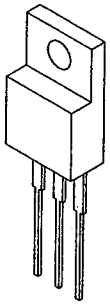
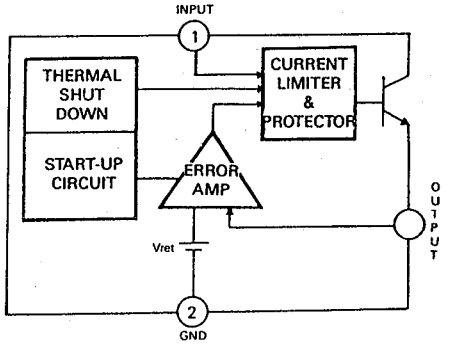
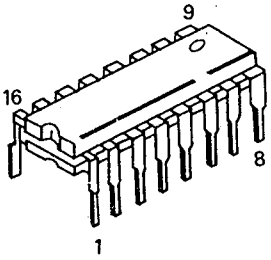
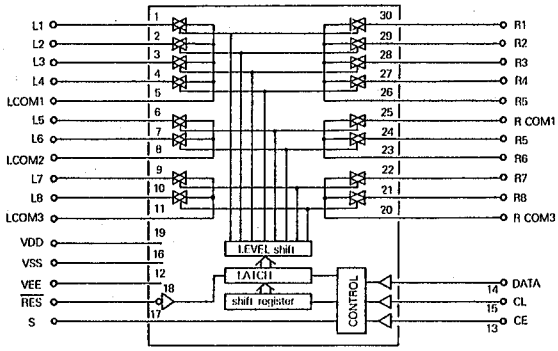
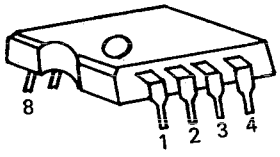
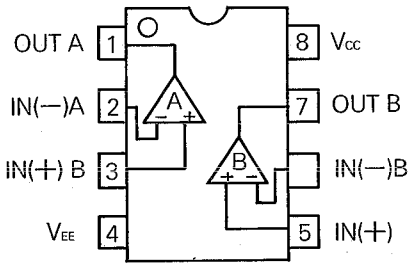
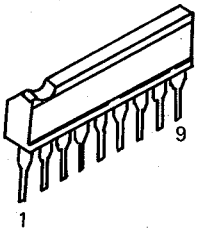
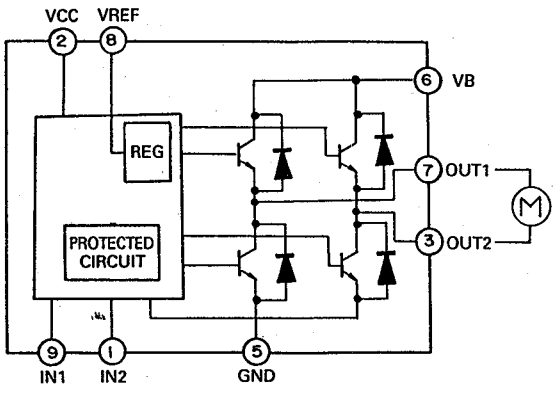
TRANSISTOR DC VOLTAGE CHART

PART	NO	REF NO	DEVICE	B	C	E	REMARK
Front B'D	1	Q501	KTC1815/BKTC31998Y	0	5.4	0	
	2	Q502	KTC1815/BKTC31998Y	0.6	14.5	0	
	3	Q503	KTC1815/BKTC31998Y	0	0	0	
	4	Q504	KTC1815/BKTC31998Y		0	0	
	5	Q505	KTC1815/BKTC31998Y	0	0	0	
	6	Q506	KTC1815/BKTC31998Y	0	0	0	
Main B'D	7	Q401(L/R)	KTC2240BL/BKTC	0	17.8	-5.3	
	8	Q402(L/R)	KTC2240BL/BKTC	0	17.8	-5.3	
	9	Q403(L/R)	KTC2240BL/BKTC	17.3	31.5	17.3	
	10	Q404(L/R)	KTC2240BL/BKTC	17.3	32.5	17.8	
	11	Q405(L/R)	2SA949	1.1	31.5	32	
	12	Q406(L/R)	KTC2229	-1.1	-32	-31.4	
	13	Q407(L/R)	BKTA965Y	-1.1	-32.5	-0.6	
	14	Q408(L/R)	BKTC2235Y	1.1	32.5	-0.6	
	15	Q409(L/R)	2SA1489	0.6	32.5	0	
	16	Q410(L/R)	2SC3853	-0.6	-32.5	0	
	17	Q412(L/R)	MPSA06	0	0	0	
	18	Q413(L/R)	KTD1302	0	0	0	Mute
	19	Q601	KTA1015Y/BKTA1266Y	-14	-15	-14.5	
	20	Q602	KTC1815Y/BKTC3198Y	0	5.04	0	
	21	Q603	KTC1815Y/BKTC3198Y	0	5.04	0	
	22	Q604	DTA114YS	0	0	15	
	23	Q605	DTA114YS	0	0	0	
Power B'D	24	Q701	MPSA06	0	15	0	

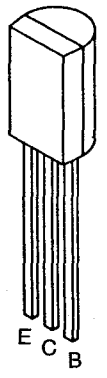
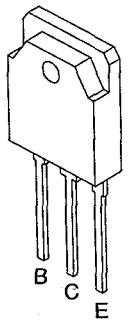
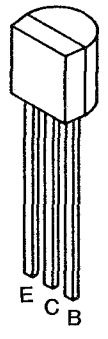
IC DC VOLTAGE CHART

PART	REF NO.	DEVICE	1/21	2/22	3/23	4/24	5/25	6/26	7/27	8/28	9/29	10/30	11/31	12/32	13/33	14/34	15/35	16/36	17/37	18/38	19/39	20/40
Front B'D	IC101	KIA4559S	0	0	0	-14	0	0	0	14.												
			0	0																		
	IC102	LC7821	0	0	0	0	0	0	0	0	0	0	0	-14	0	0	0	0	0	14	14	0
			0	0	0	0	0	0	0	0	0	0										
	IC103	KIA4559S	0	0	0	-14	0	0	0	14.												
Volume B'D	IC201	TA7291S	0	0	0.6	0	0	15	1.2	3	0											
	IC202	KIA4559P	0	0	0	-14	0	0	0	15.												
Front B'D	IC301		0	0	0	-14	0	0	0	14.												
	IC501	NC68HC 7050C89	5.4	5.4	0	0	0	0	3	0.6	2	2	0	0	5.4	0	0	0	0	0	0	0
			3.7	0	0	0	5.9	5.9	0	0	0	0	0	0	5.4	0	0	0	0	2.5	2.5	5.

IC'S LEAD & IDENTIFICATIONS

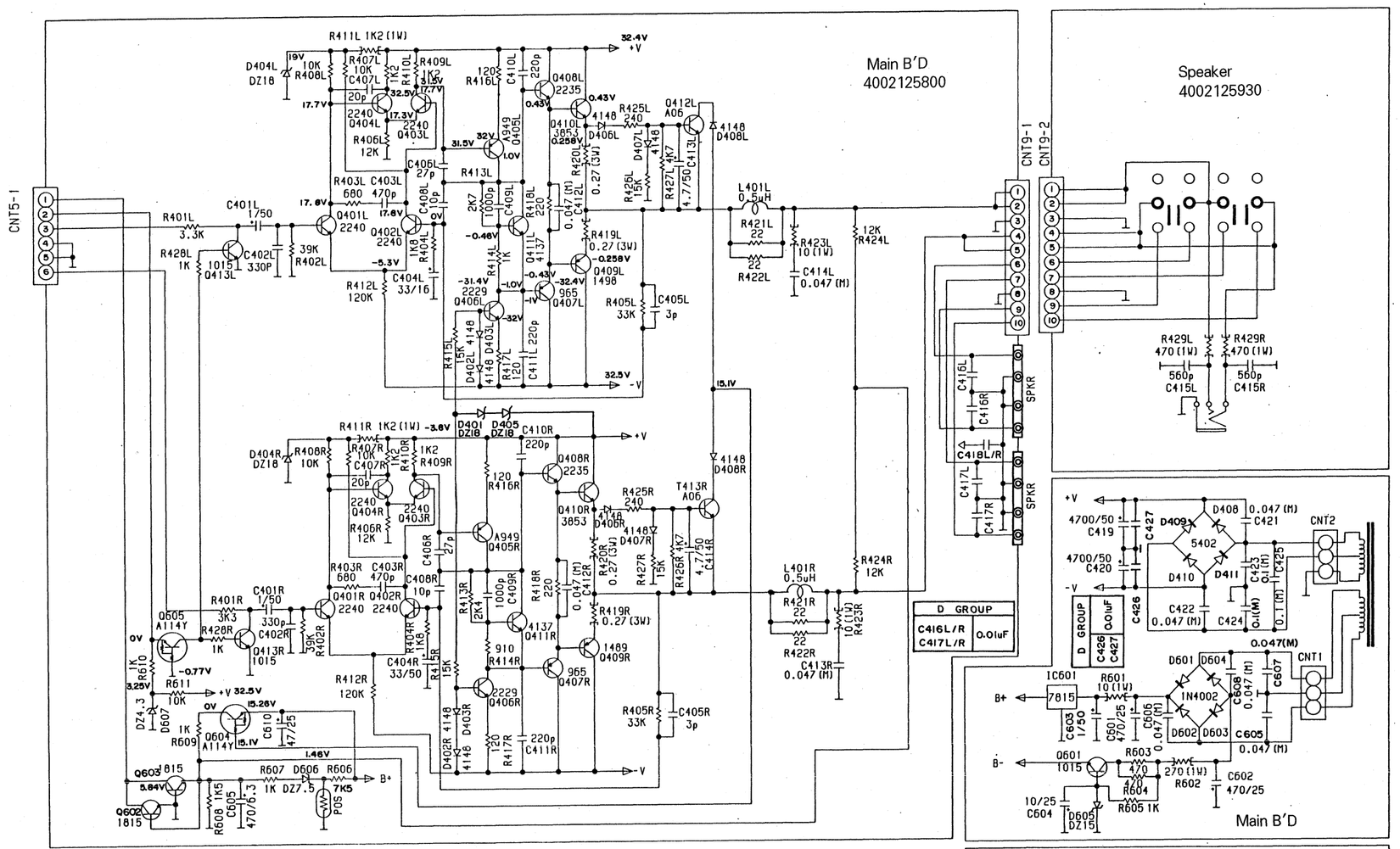
IC	VIEW	INTERNAL DIAGRAM
GD7815 : IC601		
LC7821 : IC101		
KIA7559S/KIA4559S : IC102,103,202		
TA7291S : IC201		

TRANSISTORS LEAD & IDENTIFICATIONS

TRANSISTOR	VIEW
KTC2240BL : Q401,402,403,404 KTC3206 / KTC2229 : Q406 KTA949 / 2SA949 : Q405 BKTA965Y / KTA965 / KTC2235 : Q407,Q408	
2SA1489 : Q409 2SC3853 : Q410	
MPSA06 : Q412, Q701	
KTD1302 / 2SD1302 : Q1,Q413 KTC1815 / KTC3198 / BKTC3198 : Q602,Q603, Q501,Q502, Q503,Q504, Q505,Q506, Q507,Q508 KTA1015 / BKTA1266 : Q601	

SCHEMATIC DIAGRAM I

Model No. : AX-3030R

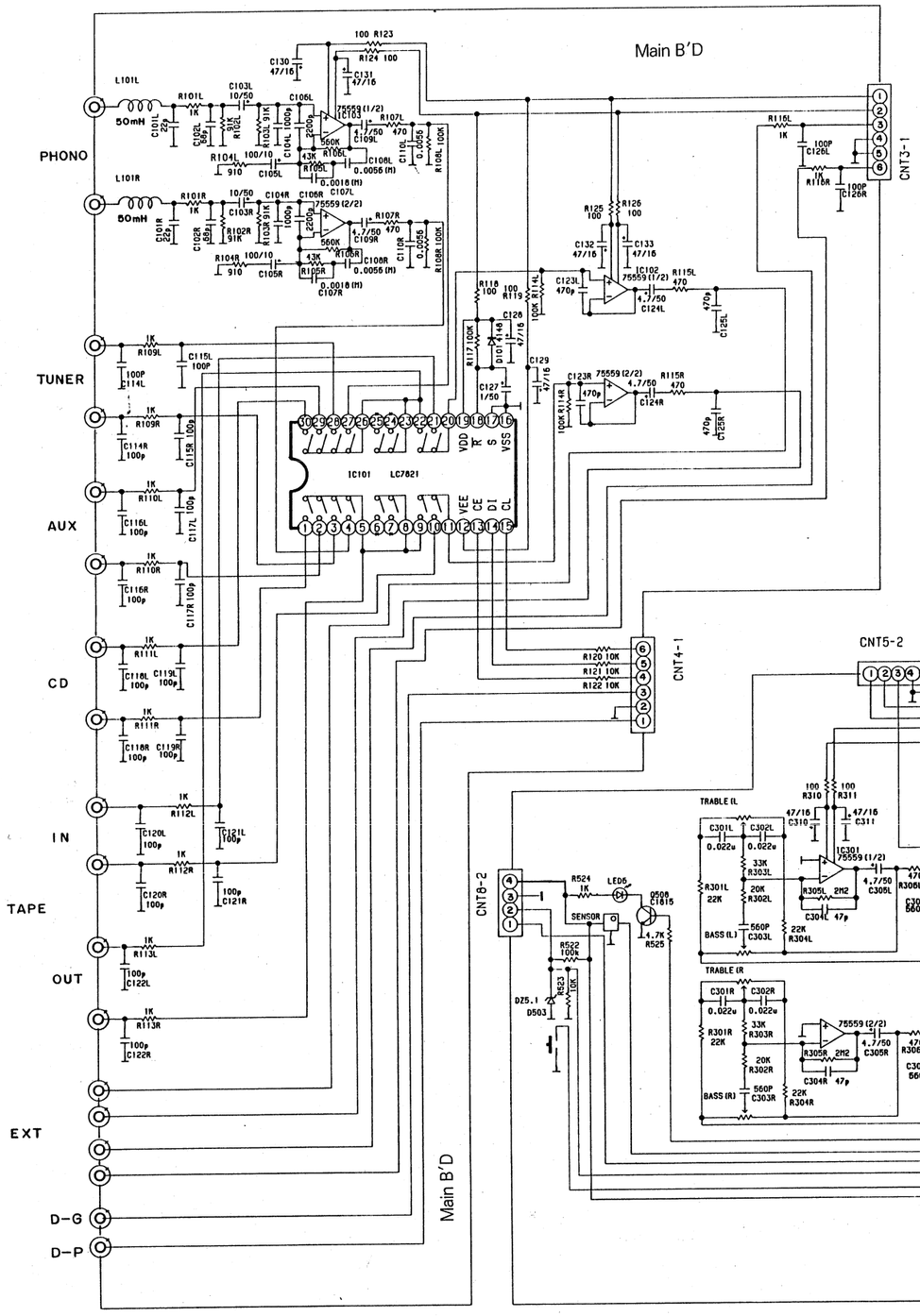


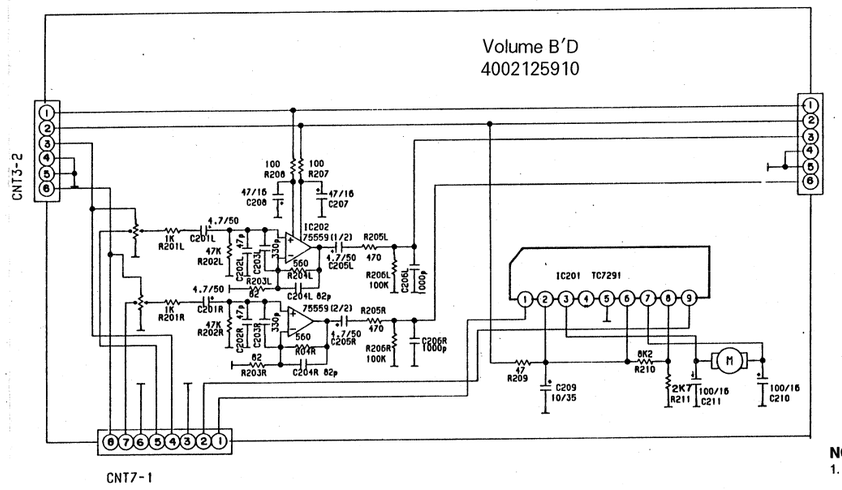
NOTES

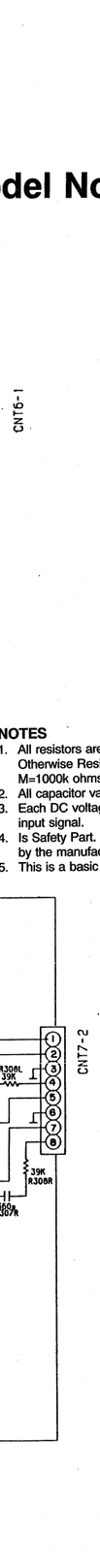
1. All resistors are 1/5 watt 5% unless marked. Otherwise Resistor values are in ohms(k=1000 ohms, M=1000k ohms).
2. All capacitor values are in microfarads.(p=picofarads).
3. Each DC voltage shows the nominal values in volts no input signal.
4. Is Safety Part. USA only replacement parts recommended by the manufacturer.
5. This is a basic schematic diagram.

SCHEMATIC DIAGRAM Ⅱ

Model No. : AX-3030R







NOTES

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